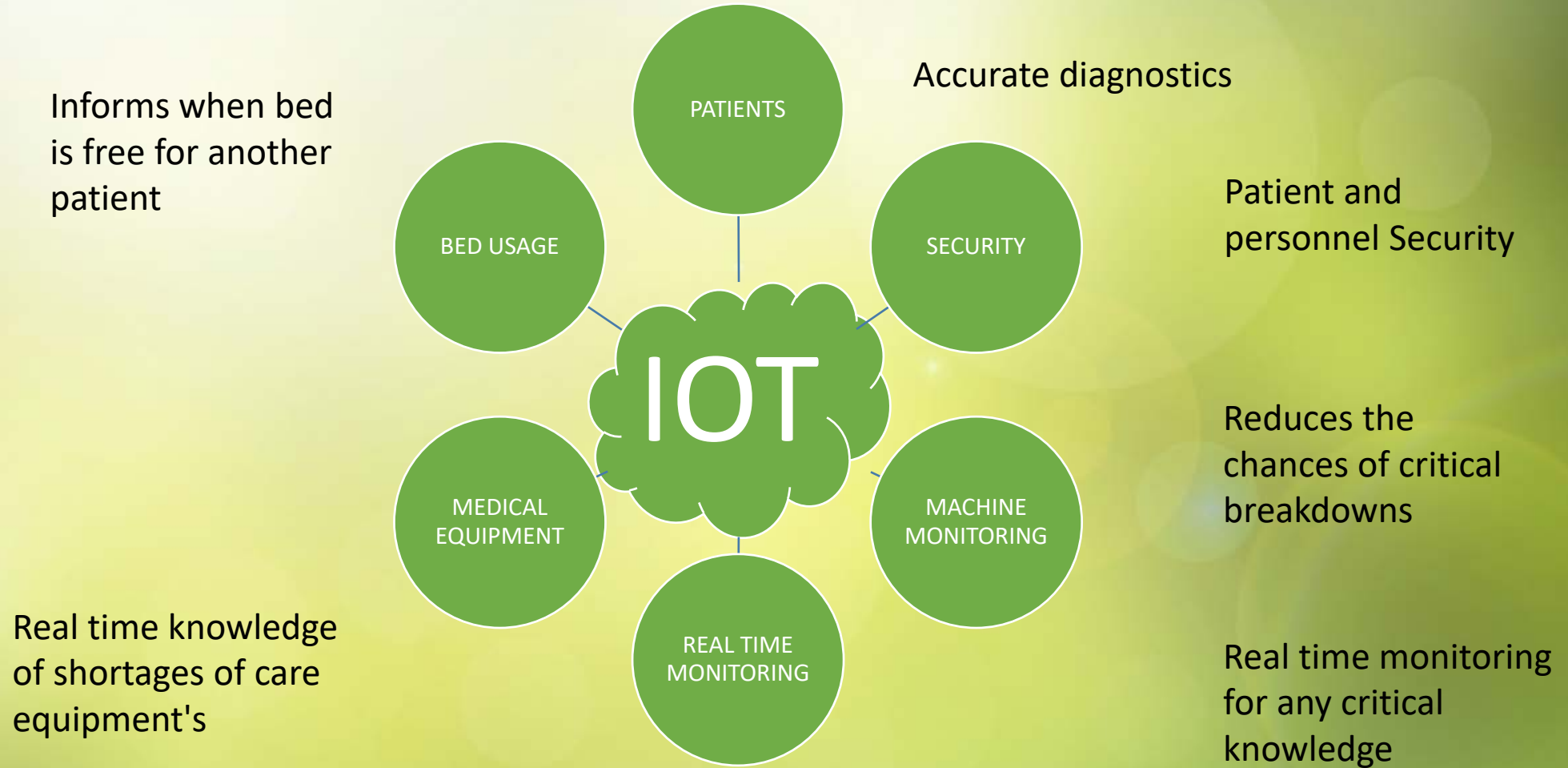


# IOT TECHNOLOGY IN HOSPITAL ENVIRONMENT



# KIPUWEX

**The Pain Analyzer**





# Pain Recognition

Recognition of infant's pain is usually based on observations performed by humans using following methods:

- NIAPAS, Comfort Behavior Scale and FLACC
- Intuition and excluding methods

Problems in these observations and assessments are:

- Risk of human errors
- Subjective and not fully reliable
- Not continuous
- Several factors not included to these methods



Development of pain assessment is important because only the identified pain can be treated. Good pain management can affect many things, such as relieve suffering, reduce complications, promote patient recovery, and shorten hospitalization. Especially the relief of pain is important prematurely born new-borns whose central nervous system is still immature. Untreated and persistent pain can leave a lifelong trauma to their their pain system, which may later become a disorder in child development. Otherwise, acute pain should be treated as well as possible in all patients so that it does not became chronic. Chronic / prolonged pain is causing great cost to society, not to mention human suffering.



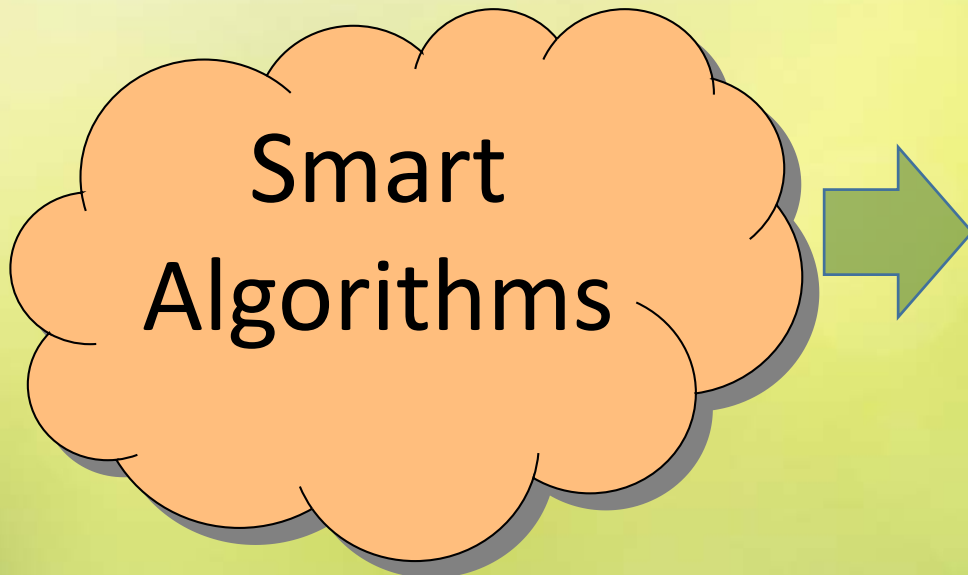
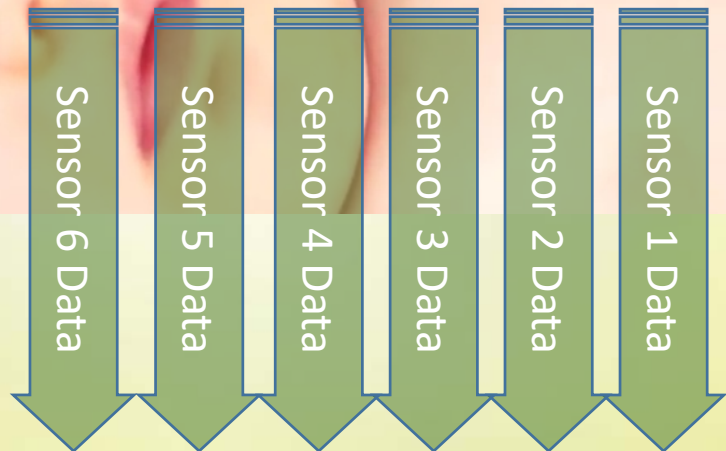
# IoT device for pain assessment



**Kipuwex** is a new technology

- IoT device for pain management
  - continuous and objective health and pain measurements to treat pain timely manner.
  - Reduces the risk of pain related traumas.
  - Improves pain management processes.
  - pre-emptive pain alerts even when a patient cannot express herself (e.g. infants, anesthesia patients, disabled and elderly).

Kipuwex is a small wireless IoT device that continuously measures different physiological parameters from the patient digitally, and converts them with an algorithm into pain data and provides efficiently reliable measurements to healthcare professionals and home users.



# This is how it works

## Sensor 1 Data

- Sound (crying)

## Sensor 2 Data

- Movement (intensity of movement)

## Sensor 3 Data

- Heart Rate

## Sensor 4 Data

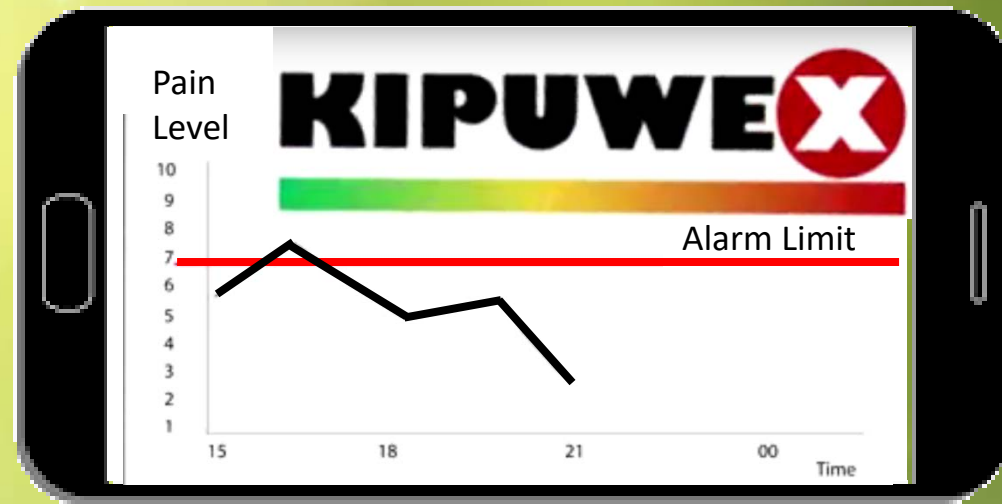
- Moisture of the skin

## Sensor 5 Data

- Temperature

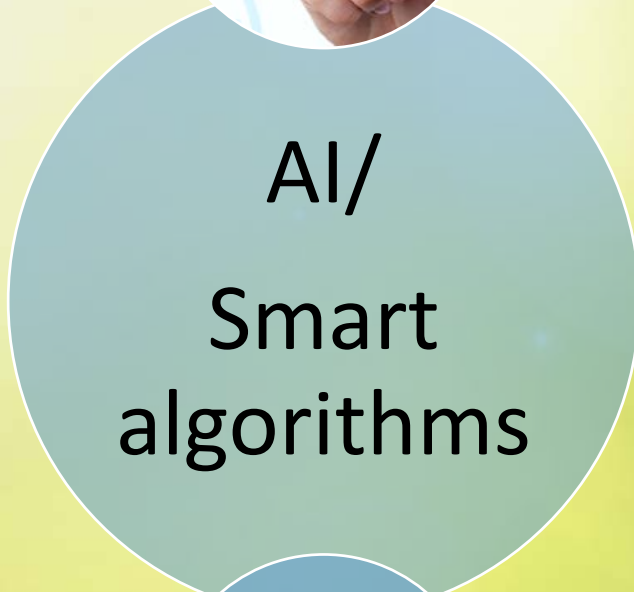
## Sensor 6 Data

- Muscle Tension



# HOME CARE

Kipuwex at home gathers pain data and sends it to cloud



# Story of Kipuwex

- Kipuwex won the innovation competition organized by OYS
- Kipuwex phase 1 was developed in co-operation with YSI project <https://youtu.be/7a6tTp1i0OY>
- Kipuwex won the (Nation wide) Polar Bear Pitching competition in Pori (Suomi Areena)
- OYS selected 3 innovative solutions with whom they want to co-operate with – Kipuwex is one them → Research co-operation agreed with OYS
- Kipuwex is successfully integrated into patient management system of OYS test lab → pain information is automatically updated every 10 second
- Co-operation with Nanjing Zhongda hospital being initiated (#6 ranked hospital in China)
- **Co-operation agreement (JV) with MiNiSV signed <http://www.minisv.com/> Together with MiniSV Kipuwex will be brought into the China market as soon as product is ready**
- Kipuwex was also selected one of the few companies to Kasvu Open, which is a growth platform for companies with high potential
- Official recognition of excellence in startup competition arranged by Junior Chamber International Finland





**Marko Höynälä, CEO**

**+358 50 480 2414**

**[marko.hoynala@kipuwex.com](mailto:marko.hoynala@kipuwex.com)**